

*Oakland University*

*College of Arts & Sciences*

*Department of Physics*

Fall 2020 PHY 1110: GENERAL PHYSICS LABORATORY-II  
Monday-AM Sec. (8 – 10:27 AM)

## **Safety Protocol for In-Person Lab – Instructions for Students**

- **To maintain social distancing requirements and for the safety of the students and instructors the experiments will be done in two different rooms:**

**269 HHS and 64 MSC (in the basement).**

- **Students enrolled in each section will be split into two groups.**
- **We will send the names of students in the two groups on September 1.**
- **Each group will work in one of the two rooms for a period of 2 weeks and then switch to the other room for the next 2 weeks.**
- **Students entering the room:**
  - Please line up outside 10 minutes before the lab start time. Maintain a separation of 6 feet.
  - Students must wear a face mask; if you don't have a mask, one will be provided.
  - *As you enter the room, one student at a time, the instructor will use a non-contact IR thermometer to measure your temperature. This is done for the safety of all.*

- ***If the temperature is above 100 F, the instructor will inform the Faculty In Charge, the Physics Chair Person (Extension 3416), and Graham Health Center (248) 370-2341. Students are expected to seek immediate medical help at GHC.***
- A hand sanitizer station will be available at the lab entrance for the students.
- You will be provided a pair of gloves and a safety goggle. We strongly encourage their use for your safety.

### **DURING THE LAB SESSION**

- Each room will have 14 clearly marked stations. YOU WILL BE WORKING ALONE AT ONE OF THE STATIONS ASSIGNED BY THE INSTRUCTORS.
- **You won't be allowed to change stations at any time.**
- ***YOU WILL ALWAYS MAINTAIN A DISTANCE OF 6 FEET FROM OTHERS DURING THE ENTIRE LAB SESSION.***
- The stools must stay in place and should not be moved. This guarantees proper distancing among students (Stools may not be moved away from the floor signs).
- In case you need help, raise your hand and the instructor will respond to your request.
- You are not allowed to contact another student for any help.
- When you are done discard the gloves in the trash bin and leave the goggles on the assigned table.
- ***Leave the lab through the door in the back of the room.***

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**Lab Manual: General Physics Laboratory II (5th Edition, Kendall Hunt)**  
(available at OU Bookstore: Cost \$26; From publisher: order online: Cost \$26 + shipping  
(<https://he.kendallhunt.com/product/general-physics-laboratory-ii-experiments>))

Instructors: Aaron Blanc and Prabhu Acharya  
Email: [ablanc@oakland.edu](mailto:ablanc@oakland.edu); [pcacharya@oakland.edu](mailto:pcacharya@oakland.edu)  
Office Hours: By appointment/email /or phone  
Class Rooms: **269-HHS AND 64-MSC**

Faculty In Charge: Gopalan Srinivasan Room: 186F, MSC Email: [srinivas@oakland.edu](mailto:srinivas@oakland.edu)  
Office hours: ONLY BY APPOINTMENT

### **Course Content, Goals and Objectives**

This laboratory course is on experiments in Electricity and Magnetism, Optics and Nuclear Physics.

You will have the opportunity to:

- learn how to use basic physical measuring devices;
- become familiar with selected physical laws and phenomena;
- get experience taking data and drawing conclusions from them;
- learn how to estimate and to combine experimental errors.

### **List of Experiments**

*Experiments 1 and 2: Ohm's law and DC and AC circuits*

*Experiment 3: Discharging and Charging a Capacitor*

*Experiment 4: Force on a Current Carrying Wire in a Magnetic Field*

*Experiments 5: Focal Length of a Lens and Image Formation*

*Experiment 6: Polarization of Light*

*Experiments 7 and 8: Diffraction and Interference of Light*

*Experiments 9 and 10: Helium and Hydrogen Line Spectrum*

*Experiments 11 and 12: Nuclear Counting Statistics and*

*Interaction of Radiation with Matter*

**(NOTE: Experiments 1 to 4 and 11 and 12 will be done in ROOM 64-MSC**

**Experiments 5 to 10 will be done in ROOM 269-HHS)**

• **12 experiments:** will be done during the semester. Please read the Notes and Introductory comments in the lab manual for general information.

• **Preparation before class:** You should be familiar with the background theory and procedure for the day's experiment. Read the appropriate experiment description in the lab manual and review the questions. Come prepared to the class with a one-page introduction (use the page in your lab manual) and have a plan for your experiment and report.

• **During the class:** Follow the instructions in your lab manual and complete the experiment with data necessary for the analysis and questions asked in the manual.

• **Reports:** ***A report will be due after every 2 experiments and must be submitted on Moodle or as attachment in email to the instructors.***  
**(Hard copies will not be accepted).**

A complete report will have the Introduction, data, graphs, analysis, and answers to the questions (not the review questions) in the lab manual. **Reports are due on the dates given in this syllabus.** Late reports will NOT be graded and will be counted as zero.

**COPYING DATA FROM PREVIOUS YEARS' REPORTS, TURNING IN OTHER'S DATA, OR MAKING UP DATA IS ACADEMIC MISCONDUCT AND WILL RESULT IN A GRADE OF 0 FOR THE COURSE AND REFERAL TO THE ACADEMIC CONDUCT COMMITTEE.**

• **Absences:** **There are no makeup labs.** Contact your lab instructor if you miss a lab due to illness.

• **Half-hour quizzes** will be given at the beginning of the class on **Oct.19 and Nov.16**

• **Grade determination**

Reports (12 experiments): 75%                      2-Quizzes:                      25%

**Tentative grade scale: 100-95: A; 94-90: A-; 89-85: B+; 84-80:B; 79-75:B-; 74-70:C+; 69-65: C; 64-60: C-; 59-55: D+; 54-50: D; ≤ 49: F.**

**PHY 1110      PHYSICS LAB II (Monday-AM Sec.)    Fall 2020**

| <u>DATE</u> | <u>Experiment</u>  | <u>Remark</u>   |
|-------------|--|---|
| Sept. 7     | NO LAB   |   |
| 14          | GROUP A - Ex.1 (64-MSC)<br>GROUP B- Ex.5 (269-HHS)       | Syllabus and Safety Protocol, Group Info  |
| 21          | GROUP A- Ex.2 (64-MSC)<br>GROUP B- Ex.6 (269-HHS)        |   |
| 28          | GROUP A- Ex.5 (269-HHS)<br>GROUP B- Ex.1 (64-MSC)        | <b><i>Report 1 (Ex. 1&amp;2 OR 5&amp;6) due</i></b>                                     |
| Oct. 5      | GROUP A – Ex.6 (269-HHS)<br>GROUP B - Ex.2 (64 – MSC)    |   |
| 12          | GROUP A – Ex.3 (64-MSC)<br>GROUP B - Ex.7 (269-HHS)      | <b><i>Report 2 (Ex. 1&amp;2 OR 5&amp;6) due</i></b>                                     |
| 19          | GROUP A – Ex.4 (64-MSC)<br>GROUP B - Ex.8 (269-MMS)      | <b><i>Quiz 1 on Ex. 1,2,5 &amp; 6</i></b>   |
| 26          | GROUP A – Ex.7 (269-HHS)<br>GROUP B - Ex.3 (64-MSC)      | <b><i>Report 3 due</i></b>  |
| Nov. 2      | GROUP A – Ex.8 (269-HHS)<br>GROUP B - Ex.4 (64– MSC)     |   |
| 9           | GROUP A – Ex.11 (64 – MSC)<br>GROUP B - Ex.9 (269-HHS)   | <b><i>Report 4</i></b>  |
| 16          | GROUP A – Ex. 12 (64 – MSC)<br>GROUP B - Ex.10 (269-HHS) | <b><i>Quiz 2 on Ex. 3,4,7&amp;8</i></b>   |
| 23          | GROUP A – Ex.9 (269-HHS)<br>GROUP B - Ex.11 (64-MSC)     | <b><i>Report 5</i></b>  |
| 30          | GROUP A – Ex.10 (269 – HHS)<br>GROUP B - Ex.12 (64-MSC)  | <b><i>Data sheets and calculations collected in class for final two experiments</i></b> |

**Add/Drops**

The University's add/drop policy will be explicitly followed. It is the student's responsibility to be aware of the university deadline dates for dropping courses.

**Reasonable Accommodations**

Accessibility and Accommodations: It is the University's goal that learning experiences be as accessible as possible. Students with disabilities who have questions about course accessibility are encouraged to contact the instructor immediately. The Office of Disability and Support Services (DSS) is available to help. The DSS office is located in room 103A North Foundation Hall.

For more information, call 248-370-3266 or visit <https://www.oakland.edu/dss>

**Policy on Academic Misconduct**

The University's regulations that relate to academic misconduct will be fully enforced. Any student suspected of cheating and/or plagiarism will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of academic misconduct in this course may receive a course grade of F, in addition to any penalty assigned by the Academic Conduct Committee. Students found guilty of academic misconduct by the Academic Conduct Committee may face suspension or permanent dismissal. The full policy on academic misconduct can be found in the General Information section of the Undergraduate Catalog.

**Excused Absence Policy**

The University excused absence policy applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee.

For the excused absence policy, see <https://www.oakland.edu/provost/policies-and-procedures/>

**Student Preferred Name/Pronoun Policy**

Course rosters are typically provided to the instructor with the student's legal names. If you do not identify with the name that is listed with the Registrar's office, please notify me. I will gladly honor your request to address you by an alternate name or gender pronoun. For more information on indicating a preferred first name on university records, please visit:

<https://www.oakland.edu/uts/common-good-core-resources/name-services/>